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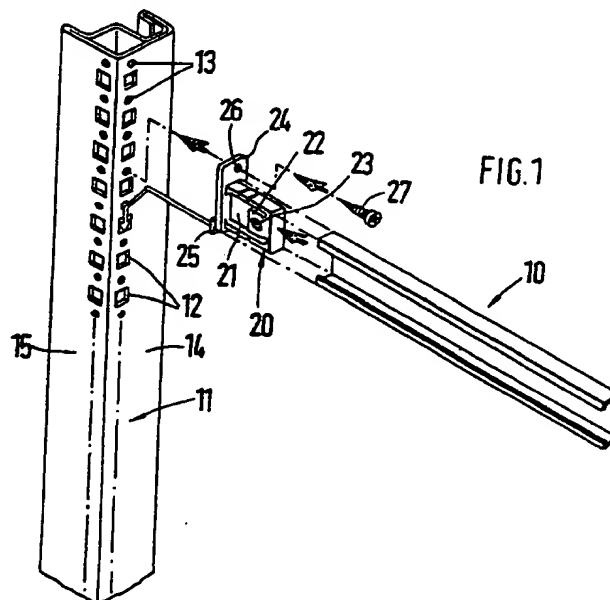
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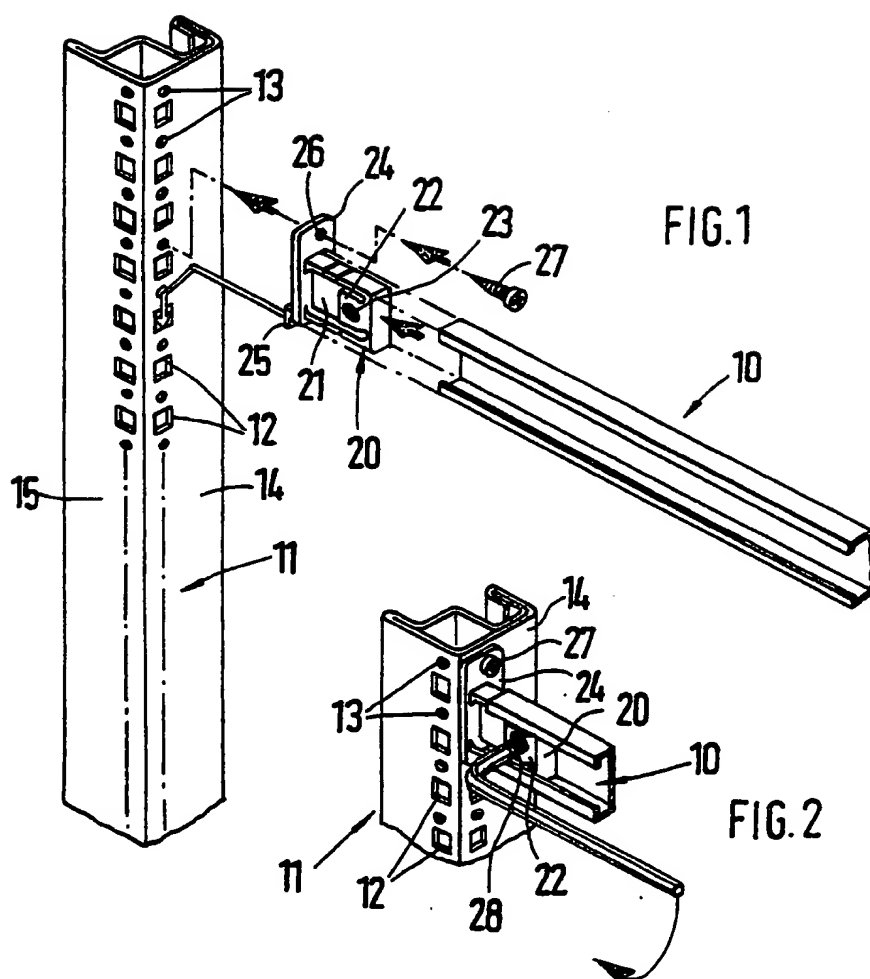
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(54) A device for securing a bar end to a wall

(57) A device for securing the end face of a C-section mounting bar 10 to a wall 14, eg of a switchgear cabinet, comprises a securing block 20 which is adapted to the internal cross-section of the mounting bar 10 and is securable at one end thereof by means of a securing screw. The securement of the mounting bar end to the wall 14 is achieved, in that the wall has a line of rectangular or square openings 12 and a line of bores 13, which are situated therebetween and are offset by an amount corresponding to a half spacing, the block 20 has a securing plate 24 on the side facing the wall, the securing plate has an L-shaped retaining hook 25 on the side facing the wall, and such hook is adapted to the openings and to the thickness of the wall and is retainable in an opening, and the securing plate 24 has a bore 26 for receiving a self-tapping securing screw 27 which is screwable into a bore 13 provided in the wall.



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DEVICE FOR SECURING A C-SHAPED MOUNTING
BAR TO A WALL PROVIDED WITH BORES

The invention relates to a device for securing the end face of a C-shaped mounting bar to a wall, which is provided with bores, of a switchgear cabinet or of a frame portion of a switchgear cabinet frame by means of a securing block, which is insertable into the end face, is adapted to the internal cross-section of the mounting bar and is securable to the wall by means of a securing screw.

Such a device is known from German Gebrauchsmuster No. 88 05 118. In this known device, the securing block is provided with a stop plate, which defines the movement of insertion of the securing block into the internal receiving means of the mounting bar. The side of the stop plate facing the wall is provided with the securing bore for the securing screw, which is introduced from the remote side of the wall into the bore provided in the wall and is screwed into the securing bore provided in the securing block. However, this arrangement presupposes that the wall which is provided with the bores also has to be accessible from the remote side. This is not always the case, however. Reference may be made to the securement of a mounting bar on a frame of a switchgear cabinet, wherein the bores are introduced into a wall of the frame, which is substantially formed from square profile sections, and such bores are not accessible from the inner surfaces of the square profile sections.

An object of the invention is to provide a device of the initially mentioned type, wherein the securement of the end face of a mounting bar to a wall which is provided with bores is easily possible, even

if this wall is only accessible from the securement end.

According to the invention, this object is achieved, in that the wall has a line of rectangular or square openings and a line of bores, which are situated therebetween and are offset by an amount corresponding to a half spacing, the securing block is sealed by a securing plate on the side facing the wall, the securing plate has an L-shaped retaining hook on the side facing the wall, and such hook is adapted to the openings and to the thickness of the wall and is retainable in an opening, and the securing plate externally of the securing block has a bore for receiving a self-tapping securing screw, which is screwable into a bore provided in the wall when the securing plate has been retained.

Since the wall is provided with lines of openings and bores which are interspersed with one another, the securing block may be retained in an opening provided in the wall, initially from the securement end, by means of the retaining hook of the securing plate. The securing plate is then screwed into the appropriately offset bore provided in the wall by means of the securing screw. In such case, the securing screw has to be self-tapping, in order to be sufficiently retained in the bore.

If, according to one embodiment, the securing block has a U-shaped recess, which divides a square nut having a threaded bore on three sides, and if the threaded bore is orientated transversely relative to the longitudinal axis of the mounting bar and vertically relative to the bottom arm of such and receives a tensioning screw for the axial securement of

the securing block in the mounting bar, then the mounting bar may be secured without axial play between two walls. In addition, this arrangement is advantageous, in that the mounting bar, which has been cut to length, does not need to be adapted exactly to the distance between the two walls.

In order to prevent the mounting bar from having lateral play, an additional embodiment provides that the arms of the L-shaped retaining hook have a width, which is adapted to the associated dimension of the openings. The retaining facility, together with the screw fastening, cause the mounting bar to be secured in a non-rotatable manner.

The device can be easily produced and manufactured because the securing plate, which is provided with the retaining hook, is integrally connected to the securing block. In such case, it is preferable for the securing block, together with the square nut and the securing plate, to be produced as a cast metal part, more especially a sprayed cast metal part.

It is easier to handle the device when the corners of the securing plate are rounded.

The weight of the securing block can be minimised when the recess leaves a space in the securing block for two frame portions which carry the square nut.

Tolerances in the dimensions of the internal cross-section of the mounting bar may largely be compensated for, in that the external surfaces of the

frame portions are provided with transversely orientated notches, webs or the like.

The present invention will be further illustrated, by way of example, with reference to the accompanying drawing, in which:

Fig. 1 is an exploded view of the component part for securing the end face of a C-shaped mounting bar to a frame portion of a frame of a switchgear cabinet; and

Fig. 2 illustrates the established connection with the mounting bar axially secured.

Fig. 1 only shows a portion of the C-shaped mounting bar 10, of which the left-hand end is to be secured to the frame portion of a frame of a switchgear cabinet. The right-hand end of the mounting bar 10 may be similarly secured to another spaced-apart frame portion of the same frame.

The device includes the square securing block 20, which is adapted to the internal cross-section of the mounting bar 10 and may be introduced into the internal receiving means of the mounting bar 10 as far as the stop member of the securing plate 24 on the end face. The U-shaped recess 21 in the securing block 20 divides the square nut 22, in which the threaded bore 23 is provided. This threaded bore 23 extends transversely relative to the longitudinal axis of the mounting bar 10 and vertically relative to the bottom arm thereof. In consequence, the square nut 22 only still communicates with the integrally formed securing plate 24 via the two frame portions. The securing plate 24 protrudes at least beyond a narrow side of the

mounting bar 10 and, in this region, is provided with the bore 26 for the securing screw 27. The longitudinal sides or surface of the securing plate 24 may terminate flush with the facing external surfaces of the mounting bar 10. The L-shaped retaining hook 25 is moulded to fit on the securing plate 24 on the side facing the wall 14 of the frame portion 11. A line of square openings 12 is provided in each of the walls 14 and 15 of the frame portion 11, and such openings are disposed with regular spacings therebetween. A line of bores 13 is provided in each of these lines of openings 12, and said bores are offset relative to the openings 12 by an amount corresponding to half a spacing. If the retaining hooks 25 have a width which corresponds to the lateral length of the openings 12, the securing block 20 may be retained in an opening 12.

In such case, the L-shaped retaining hook 25 is mounted on the securing plate 24 so as to protrude with the end portion spaced from the thickness of the wall 14. The bore 26 in the securing plate 24 is so adapted to the retaining hook 25 that, in the retaining position, the bore 26 in the securing plate 24 is in alignment with the bore 13 in the wall 14, which is offset from the opening 12 by an amount corresponding to $1\frac{1}{2}$ spacings, the retaining hook 25 being retained in said opening 12. In consequence, despite a single screw connection, the securing block 20, and hence the mounting bar 10 which is supported by the securing block 20, are non-rotatably retained on the frame portion 11. The threaded bore 23 in the square nut 22 is accessible through the slot in the mounting bar 10 and, in consequence, the tensioning screw 28, which is in the form of a grub screw with a hexagonal socket, can secure the mounting bar 10 to the securing block 20 in an axially non-displaceable manner, so that the

mounting bar 10 can certainly have clearance of motion in the axial direction on the securing block 20 prior to the clamping screw 28 being tightened. This clearance of motion is important when the mounting bar 10 is secured at both ends, so that both retaining hooks 25 may be retained in the associated frame portions. Once the securing plates have been secured, the axial securement with the clamping screws may then be effected.

Instead of using the frame portion 11, any other wall of the switchgear cabinet may be used for the securement of mounting bars, even if such wall is provided with the lines of openings 12 and bores 13.

CLAIMS

1. A device for securing the end face of a C-shaped mounting bar to a wall, which is provided with bores, of a switchgear cabinet or of a frame portion of a switchgear cabinet frame by means of a securing block, which is insertable into the end face, is adapted to the internal cross-section of the mounting bar and is securable to the wall by means of a securing screw, wherein the wall has a line of rectangular or square openings and a line of bores, which are situated therebetween and are offset by an amount corresponding to a half spacing, the securing block is sealed by a securing plate on the side facing the wall, the securing plate has an L-shaped retaining hook on the side facing the wall and such hook is adapted to the openings and to the thickness of the wall and is retainable in an opening and the securing plate externally of the securing block has a bore for receiving a self-tapping securing screw which is screwable into a bore provided in the wall when the securing plate has been retained.

2. A device as claimed in claim 1, wherein the securing block has a U-shaped recess, which divides a square nut having a threaded bore on three sides, and the threaded bore is orientated transversely relative to the longitudinal axis of the mounting bar and vertically relative to the bottom arm of such and receives a tensioning screw for the axial securement of the securing block in the mounting bar.

3. A device as claimed in claim 1 or 2, wherein the arms of the L-shaped retaining hook have a width which is adapted to the associated dimension of the openings.

4. A device as claimed in any one of claims 1 to 3, wherein the securing plate which is provided with the retaining hook is integrally connected to the securing block.

5. A device as claimed in any one of claims 1 to 4, wherein the corners of the securing plate are rounded.

6. A device as claimed in any one of claims 1 to 5, wherein the recess leaves a space in the securing block for two frame portions which carry the square nut.

7. A device as claimed in claim 6, wherein the external surfaces of the frame portions are provided with transversely orientated notches, webs or the like.

8. A device as claimed in any one of claims 1 to 7, wherein the securing block together with the square nut and the securing plate are produced as a cast metal part.

9. A device as claimed in claim 8, wherein the square nut and the securing plate are produced as a sprayed cast metal part.

10. A device for securing the end face of a C-shaped mounting bar to a wall, substantially as hereinbefore described with reference to the accompanying drawings.